

*With the compliments of
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(Address: Santa Barbara, Cal)*

THE METHOD OF MANUFACTURE
OF SEVERAL ARTICLES

BY THE

FORMER INDIANS OF SOUTHERN CALIFORNIA.

By PAUL SCHUMACHER.

[From the Eleventh Annual Report of the Peabody Museum of Archaeology and
Ethnology. Cambridge. 1878.]

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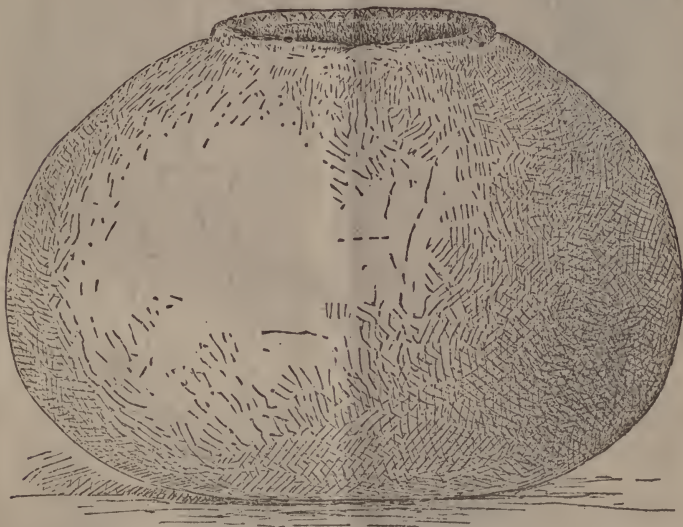
THE METHOD OF MANUFACTURE OF SEVERAL ARTICLES BY
THE FORMER INDIANS OF SOUTHERN CALIFORNIA.

BY PAUL SCHUMACHER.

I. THE STONE POT, OR *Olla*.

In my investigations among the remains of the aborigines of the Pacific coast, south of San Francisco, I was always rewarded by finding the *olla*,¹ one of the most beautiful utensils of genuine aboriginal workmanship. The pot is usually of globular form with a narrow opening on the top, sometimes pear-shaped, and others of the Mexican form with a wide opening. Illustrations of the main

Fig. 1.

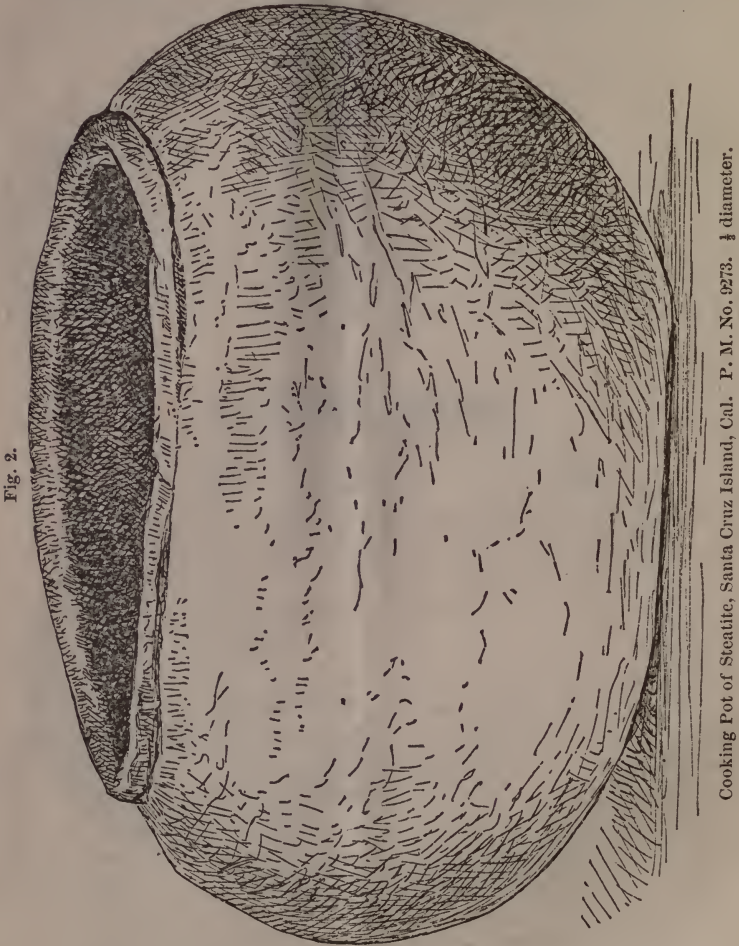


Cooking Pot of Steatite, Dos Pueblos, Cal. P. M. No. 9202. $\frac{1}{4}$ diameter.

types are found in Bancroft's "Native Races of the Pacific States," Vol. IV, page 693, from my own drawings; and in Rau's "Archæ-

¹ *Olla*, Mexican pronunciation *ôya*, from the Latin *olla*, pot.

ological Collection of the National Museum," page 36, from collections made by me two years ago. [Figures 1 and 2 represent two common forms of these pots, drawn from specimens in the Peabody Museum, collected by Mr. Schumacher.—F. W. P.]



The stone of which this utensil for culinary purposes, and some other articles of our Indians, were worked out, has been well known and in use for like purposes since the classic times of Theophrastus and Pliny. The Magnesian stone (*μαγνητικὸς λίθος*),

and the kind quarried at Siphnus and Comum—the *lapis ollaris* of a later period—of which, in ancient times, vessels were hollowed out in the turning lathe, and carved, coincide in nature and composition with the potstone of our Indians. The stone is steatite, and is usually of a greenish gray color, sometimes showing hexagonal prisms in stellated groups, with pearly lustre and greasy touch, especially when reduced to powder. It changes in some portions of the same ledge into a more flaky and micaceous character; while in neighboring deposits on Santa Catalina Island, it exists crystallized in stellated groups of well-developed hexagonal needles of glistening apple color, which are easily detached from the weathered surface. The living rock is not as bright or shining as are the fragments of pots that have been exposed to heat; it loses its greasy character the more a utensil has thus been in use, and the color is changed to a bright metallic lead color. Some years ago I showed a potsherd, the color of which had thus been changed by fire, to a mineralogist, who pronounced it Magnesian mica.

The first information I gained of the locality of quarries of potstone, or where pots were made, was from a venerable Spanish lady while exhuming in Nipomo rancho, San Luis Obispo county, in the spring of 1874. She recollected a narrative of her mother, according to which the Indians had brought *ollas* in canoe-loads from the islands in Santa Barbara channel to the mainland, which they exchanged for such necessities as the islanders were in want of. Two years later, in Santa Barbara county, I received similar information from an old Mexican, then my guide. While making researches among the islands, at the joint expense of the Smithsonian Institution and the Peabody Museum,² I gained the assurance, during my short stay on Santa Catalina, that the stone exists in certain places on that island, but did not then succeed in finding the quarries. But during my last expedition to that locality, in behalf of the Peabody Museum, and of which an outline is given in my prefixed letter, I made the discovery, found pits and quarries, the tools used and unfinished articles. I noticed that the softer stone, usually obtained in pits, which is of a more micaceous character, was used for pots, while the close-grained rock of darker

² "Researches in the Klökkenmöddings of the coast of Oregon, and of the Santa Barbara Islands and the adjacent mainland." Hayden's Geog. and Geol. Survey, Bulletin, Vol. III, No. 1.

color, serpentine, was mainly used for the weights of digging sticks, cups, pipes, ornaments, etc.

While in camp at Little Springs, my attention was first arrested by a small mound of silvery hue, which same hue also extended over the adjoining ground. The mound is in front of a large outcropping rock of potstone, which I found to be an impressive witness of the tedious labors of the aborigines, it being entirely covered with marks where pot-forms had been worked out or left in various stages; some even were only begun and abandoned, while others were nearly worked out in rough outlines but still united with the living rock. At the foot of the bluff is a burrow in which, and among the *débris* forming the mound, many potsherds, a broken pot of which the outside had already been well worked, and even the hollow started, and a pot-form as broken from the mother rock, were brought to light, with many tools of hard slate in shape of chisels, and scrapers of quartz.

From the Little Springs we followed the cañon to the northward, and crossed the pass, easy of access from this side, into Pots Valley. It is a wide hollow cañon in which potstone, silicious slate and "float"-quartz are found abundantly. The potstone is found especially below the small spring, which makes out near the base of a very conspicuous, isolated, large rock, which stands nearly in the centre of the valley; while the slate, of which the chisels are made, crops out boldly, higher up, near the pass. Several hundred yards below the spring at the ravine to the right, going down, is found a pit; and the ledge of potstone close by forms a face in the ravine, which shows the same marks of the chisel as at Little Springs. About eight distinct marks cover the lower face, while others are obliterated by subsequent mining. One, having only been commenced, shows the outlines of a pot-form in a circle worked to a depth of only an inch, and measures sixteen inches in diameter. Between this place and the second ravine about fifty yards to the northwestward, is another pit of larger dimension—about fifteen feet in diameter and still five feet deep—where, too, among the *débris*, potsherds and quantities of slate fragments and quartz are found, some of which had evidently been used in working the mine, and making the pots. Besides these places there are many more pits in the valley, and a quarry especially prominent about four hundred yards to the eastward from Pots Valley boat landing, close to the steep ocean shore. In

fact, on entering the cañon by the pass, as we did, when the grand rock near the spring, the lesser cliffs and the scattered boulders can be overseen, I was struck, on examining the locality through a field-glass, by the discovery of so many silver hued mounds, the débris

Fig. 3.



Rude Chisel of Slate used in making the steatite pots. P. M. No. 13411.
 $\frac{1}{2}$ diameter.

of pits, the rock quarries and open air workshops, so that I believed I had found the main factory of the *ollas* of the California aborigines. Even those not interested in aboriginal remains cannot fail to notice the manufacturing propensities of the people that formerly roamed here, and the locality was appropriately named.

In examining the slate quarry I found

Fig. 4.



Rude Scraper of Quartz, used in making steatite pots. P. M. No. 13412.
Actual size.

the rock had been first broken into accidental shape and size, and such pieces best adapted for chisels were then selected and trimmed.

The scrapers, usually made of milky quartz, found in abundance all over the island, are sometimes quite well chipped, but oftener simple flakes.

I will mention here that we detected among the chisel-marks on the living rock, as also on several potsherds, distinct signs of metallic tools having been used. These were probably of iron and like those which we frequently found in the burying-ground on the Isthmus.

Figure 3 illustrates a chisel of slate, half its natural size, and figure 4 a scraper made of quartz, of natural size.

Figure 5 represents a part of the bluff near the boat landing,

Fig. 5.



Ledge of Steatite, Santa Catalina Island, showing the method of detaching and shaping the pots.

and will give a better idea of how the rough work of detaching the rock was carried on.

After the pot-form had been worked out, it was broken from the living rock by working under it and by the gradual pressure of the chisel around the base. The detached pot-boulder was next rounded into proper form; it was then hollowed out until a certain thickness of the pot was reached; and finally, carefully finished with the scraper. As the thickness of the *olla* increases towards the bottom—it usually thickens from about half an inch at the rim

to one and a half at the bottom—it requires skill to attain this evenly. No mechanical apparatus was used for this purpose (as shown by certain irregularities in the form of the pot) but simply the touch of both hands in antiposition, one gliding outside the already finished surface while the other worked inside towards the guiding hand. In this wise, with some practical experience, a greater accuracy is attainable than at first might be supposed, especially if the work proceeds from a known thickness to which reference can be taken, which is here the case as it progressed from the rim.

A new pot is without polish, and has only the smooth surface imparted by the scraper; while those which had been in use attained frequently a polished surface by wear, which the soft and greasy nature of the potstone is inclined to adopt.

II. THE MORTAR.

On the southwestern shore, near the southeast end of San Clemente island, where a fair landing exists, we found a station prominently located on a shallow dune, about a mile below what is known as Chinese Point. To this place large numbers of beach-worn boulders of basalt of different sizes were brought, mostly such as were suitable for the manufacture of mortars which were here largely made. Some of the rocks were broken in the rough state, in the attempt to split off a section of the globular mass, to make a flat surface on which to begin the excavation; others, of a more convenient semi-circular form, bore marks of the chisel as, in one instance, a circle outlining the intended size of the basin; some broke in the hands of the worker while working out the basin, and one, we found, was abandoned on account of a flaw in the rock. The work of shaping the stone was first done with the hammer, consisting of a piece of hard rock, generally of quartz, of about a pound in weight, with sharp edges and points. Persistent and well directed blows with such a hammer, applied either directly with the hand or attached to a handle, will detach even large pieces with sufficient accuracy to give a rough form, if the tendency of cleavage is properly taken into consideration; while the more exact form, and a smoother surface, is worked in the way the serrated hammer of the modern stone cutter is directed, vertically against the face. The basalt rock, all

though very hard, is of a crumbling nature and will granulate easily under a pointed hammer. We found, therefore, but few chisels in the workshops of Clemente island, and these were evidently applied more for working out the basin, when the hammer could not conveniently be used. When the mortar is made of sandstone, which, instead of being brittle like the basalt, is soft and more adhesive or tough, I believe the chisel was used to a greater extent, and this is indicated by the sharper peck-marks.

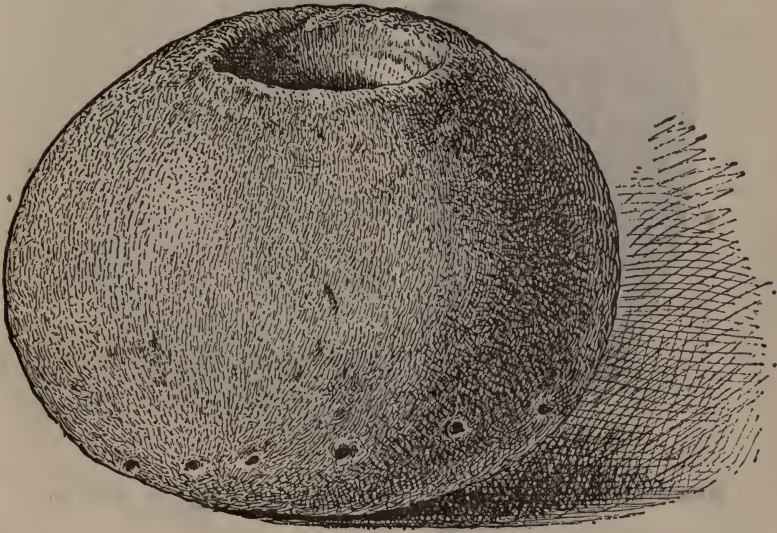
Judging the progress of work by the advance of a single stroke of the hammer or chisel, I am of the opinion, a neat mortar of common dimensions—twelve inches in diameter—should not have required more than a week's work; and for a pot even less time should have been consumed by a skilled worker, not allowing for the detachment of the pot-form from the living rock which must have nearly doubled the time.

III. WEIGHTS FOR DIGGING-STICKS.

These implements,—as are so many others that have a hole, a notch, or other means of fastening a line,—are often considered as sinkers. One of the less frequent types of net sinkers, indeed, resembles the weight for a digging-stick, but yet there is as much difference between the two as between a mortar and an *olla*. The sinker is of a different material; is coarsely finished; the hole is much smaller, and narrower in the middle; and is hardly ever drilled, or finished by drilling, but simply pecked. My first impression, on finding these perforated stones, was that they were the heads of war-clubs, to which those of a pear-shape especially seem to answer. By examining a large number of fragments, however, I found most of the stone-rings had been broken in two, parallel with the hole, which could not be caused by the side pressure of the club, but by a wedge-like action against the inner sides. The suggestion that these stones were weights for digging-sticks, such as are still in use among the Hottentots, I received from an aged half-breed, while working on Santa Cruz island, two years ago, and I have since become convinced that such was their use. If we examine a stone-ring which has done some service, we find the hole shows a polish and fine striæ running lengthwise, and wear on one end of the ring imparted by the hand while in use and

in carrying the digging-stick where it naturally would rest, with its projecting stone weight, against the hand. I found some of the weights thus deeply worn, and by mounting one on a proper stick it fitted nicely to the grasped hand. I also noticed a specimen, among the many sent to the Peabody Museum, in which the hole had been enlarged in full width but in one direction only—making an elliptic hole—worn by the digging-stick while worked, when its own weight could only act against the sides of the stick corresponding to the flattened ends of the wooden spade. There were two methods by which the hole in the stone was made, both of

Fig. 6.

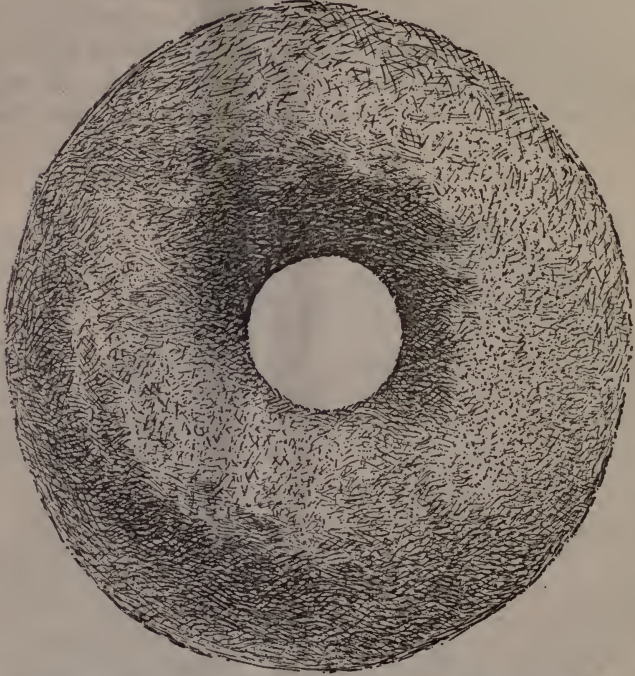


Weight for Digging-stick from Santa Cruz Island. P. M. No. 9296. Nat. size.

which are illustrated by numerous specimens in the collection. In one instance the weight,—almost exclusively of steatite, but occasionally of a harder stone,—was first roughly worked into the desired ball or a more flattened disk; the hole was then chiselled from both sides until it met; it was then drilled out to an equal width throughout; and the weight was finally finished by working the outside in a symmetrical form. The more elaborate weights, however, were finished in outline before the hole was bored. The hole

was made, no doubt, with a flint point, the *striae* are deep and the width of an unfinished hole decreases towards the centre. A drilling apparatus might have been used, for the streaks of the drill are well defined and in full circle, which could hardly be attained

Fig. 7.



Weight for Digging-stick from San Nicholas Island. P. M. No. 9353. Nat. size.

by turning the borer simply between the hands. Figures 6 and 7 represent two common forms of these weights.

Among the weights for digging-sticks we find many of small sizes and inferior make, which could not have been of any practical use for this purpose and often deviating so much in form as to make it doubtful if they were designed as weights. The same deviation from the practical size we find sometimes among mortars—not meaning the paint-cups—the pestles, and frequently among the *comales* (the flat stone plates for baking *tortillas*) which were formerly extensively in use, judging by the many specimens col-

lected. Such articles we may safely bring under the head of children's playthings, in whose graves they are usually found.

IV. PIPES.

Very little need be said of the manufacture of this article which has been, in the form common on this coast, a mysterious thing to many, and was usually classed among the nondescripts of the medicine-man, wherewith, it was thought, he practised deception to sick believers. The pipe is a funnel-shaped tube like a thick, enlarged, modern cigar-holder, with an opening usually over an inch in diameter at the large end, and narrowing to one-third of an inch towards the other, which has a corresponding decreased thickness.

The hole was drilled from both ends, but only to a short distance from the smaller, and the mouth of the pipe was then enlarged by scraping parallel with the longer axis. For a mouth-piece, which protrudes about an inch, a piece of a wing, or leg-bone, of some bird, was inserted and tightly secured with asphaltum. The pipe was usually made of steatite and is sometimes neatly finished.

The Klamaths of the present day use a pipe of similar form to those found in the graves, and still smoke the native tobacco, *Nicotiana quadrivalvis*, which I found to be a sickening narcotic. It amused me to see an Indian bending back his head to bring the pipe in a vertical position, so as not to lose any tobacco, while taking a long draught which he inhales, the longer to enjoy the short opportunity, as the pipe must be passed on.

